ABSTRACT

Techniques for estimating the temporal refractory period of a heart, for adjusting a parameter for delivery of extra-systolic stimulation (ESS) therapy and for detecting an arrhythmia during delivery of ESS therapy are disclosed. In some embodiments, probe pulses are periodically delivered to estimate the location of the end boundary of the refractory period, and accordingly estimate its length. In some embodiments, the parameter is adjusted based on estimated length of the refractory period. For example, an extra-systolic interval (ESI) for delivery of ESS is adjusted to be a fixed interval longer than estimated lengths of the refractory period. In other embodiments, the parameter is adjusted based on a measured delay (or latency) between delivery of an ESS pulse and detection of an evoked response resulting from the pulse. In some embodiments, delays between delivery of an ESS pulse and detection of a subsequent depolarization are monitored to detect an arrhythmia.